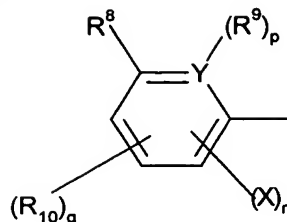


contd.
a¹



R¹ is hydrogen, hydroxy, or alkoxy,

R² and R³ are each independently hydrogen or alkyl,

R⁴, R⁵, R⁶ and R⁷ are each independently hydrogen, halogen, cyano, hydroxy, alkoxy, aryl, alkyl, alkyl substituted by one or more halogen atoms or one or more hydroxy or alkoxy groups, alkyl interrupted by one or more hetero atoms, alkenyl, trialkylsilyl, carboxy, alkoxy carbonyl, or -CONR¹¹R¹², where R¹¹ and R¹² are each independently hydrogen or alkyl, or R⁴ and R⁵, R⁵ and R⁶, or R⁶ and R⁷ together with the carbon atoms to which they are attached denote a carbocyclic or heterocyclic ring,

R⁸ is halogen, -OR¹³, -CH₂OR¹³ or -NHR¹³ where R¹³ is hydrogen, alkyl, alkyl interrupted by one or more hetero atoms, -COR¹⁴, where R¹⁴ is hydrogen, -N(R¹⁵)R¹⁶, alkyl or alkyl interrupted by one or more hetero atoms, or aryl and R¹⁵ and R¹⁶ are each independently hydrogen, alkyl or alkyl interrupted by one or more hetero atoms, or R¹³ is -C(=NH)R¹⁷, -SOR¹⁷ or -SO₂R¹⁷ where R¹⁷ is alkyl or alkyl interrupted by one or more hetero atoms, and R⁹ is hydrogen, or R⁸ is -NHR¹⁸ where -NHR¹⁸ and R⁹, together with the carbon atoms to which they are attached, denote a 5- or 6-membered heterocycle,

R¹⁰ is -OR¹⁹ or -NHR¹⁹ where R¹⁹ is hydrogen, alkyl, alkyl interrupted by one or more hetero atoms, or -COR²⁰, where R²⁰ is -N(R²¹)R²², alkyl or alkyl interrupted by one or more hetero atoms, or aryl, and R²¹ and R²² are each independently hydrogen, alkyl or alkyl interrupted by one or more hetero atoms,

X is halogen or halomethyl or alkyl,

Y is carbon or nitrogen,

n is 1 or 2,

p is zero when Y is nitrogen or 1 when Y is carbon,

q and r are each zero or 1, the sum of q+r is 1 or 2; and

the carbon atom marked with an asterisk* has the R or S configuration, or a mixture thereof, when R¹ is hydroxy or alkoxy.

18. A compound according to claim 17, in which Ar is a group of formula II in which Y is carbon,

contd.
a¹
R⁸ is -NHR¹⁸ and -NHR¹⁸ and R⁹ together denote

a group of formula -NH-CO-R²³- where R²³ is an alkylene, alkenylene or alkyleneoxy group,

a group of formula -NH-SO₂-R²⁴- where R²⁴ is an alkyleneoxy group,

a group of formula -NH-R²⁵ (COOR²⁶)- where R²⁵ is an alkylene or alkenylene group and R²⁶ is alkyl, or

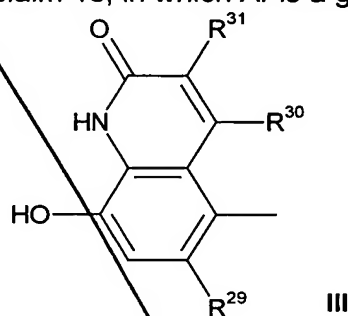
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a group of formula -NH-CO-NH- or -NH-CO-S-,

R¹⁰ is -OR¹⁹, where R¹⁹ is as defined in claim 1,

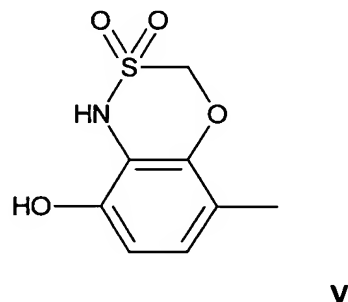
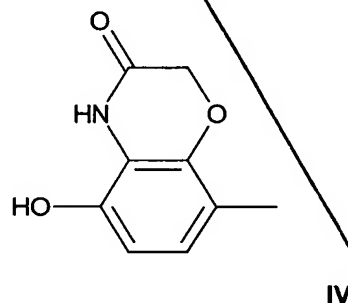
X is alkyl,

p is 1, q is 1 and r is zero or 1.

19. A compound according to claim 18, in which Ar is a group of formula III, IV, V, VI or VII:

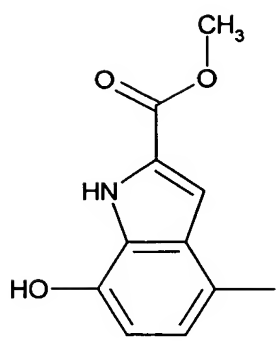


in which R²⁹, R³⁰ and R³¹ are each independently hydrogen or C₁-C₄-alkyl

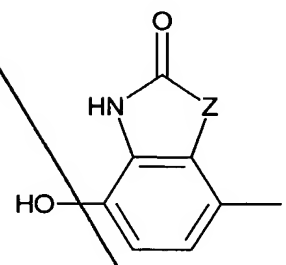


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VI



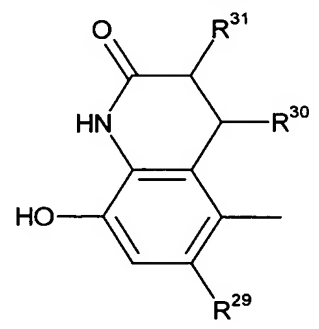
VII

in which z is -O-, -NH- or -S-,

R¹ is hydroxy, R² and R³ are hydrogen, and R⁴ and R⁷ are identical and are each hydrogen, C₁-C₄-alkyl or C₁-C₄-alkoxy, and either R⁵ and R⁶ are identical and are each hydrogen, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-C₁-C₄-alkyl, or R⁵ and R⁶ together denote -(CH₂)₄- or -O(CH₂)₂O-.

20. A compound according to claim 19, in which the carbon atom in formula I marked with an asterisk * has the R configuration.

21. A compound according to claim 17, in which Ar is a group of formula



IIIa

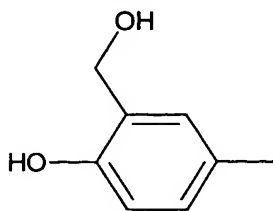
where R²⁹, R³⁰ and R³¹ are each independently hydrogen or C₁-C₄-alkyl.

22. A compound according to claim 17, in which Ar is a group of formula II in which Y is carbon, R⁸ is -CH₂OR¹³ where R¹³ is hydrogen, C₁-C₄-alkyl, or C₁-C₄-alkoxy-C₁-C₄-alkyl, R⁹ is hydrogen, R¹⁰ is -OR¹⁹ where R¹⁹ is hydrogen, C₁-C₄-alkyl or -COR²⁰ where R²⁰ is C₁-C₄-alkyl, C₆-C₁₀-aryl or -N(R²¹)R²² where R²¹ and R²² are each independently hydrogen or C₁-C₄-alkyl, p

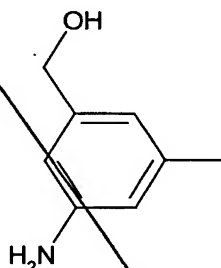
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and q are each 1 and r is zero; or a group of formula II in which Y is nitrogen, R^8 is $-\text{CH}_2\text{OR}^{13}$ where R^{13} is hydrogen, $\text{C}_1\text{-C}_4\text{-alkyl}$ or $\text{C}_1\text{-C}_4\text{-alkoxy-C}_1\text{-C}_4\text{-alkyl}$, R^{10} is $-\text{OR}^{19}$ where R^{19} is hydrogen, $\text{C}_1\text{-C}_4\text{-alkyl}$ or $\text{C}_1\text{-C}_4\text{-alkoxy-C}_1\text{-C}_4\text{-alkyl}$, p and r are zero and q is 1.

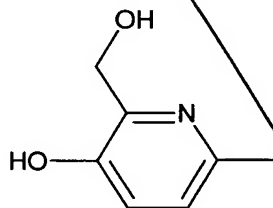
23. A compound according to claim 22, in which Ar is a group of formula XII, XIII or XIV



XII



XIII



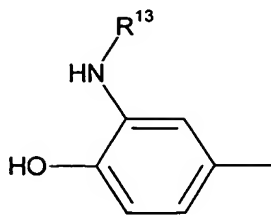
XIV

R^1 is hydroxy, R^2 and R^3 are hydrogen, R^4 and R^7 are identical and are each hydrogen, $\text{C}_1\text{-C}_4\text{-alkyl}$ or $\text{C}_1\text{-C}_4\text{-alkoxy}$, and either R^5 and R^6 are identical and are each hydrogen, $\text{C}_1\text{-C}_4\text{-alkyl}$, $\text{C}_1\text{-C}_4\text{-alkoxy}$ or $\text{C}_1\text{-C}_4\text{-alkoxy-C}_1\text{-C}_4\text{-alkyl}$, or R^5 and R^6 together denote $-(\text{CH}_2)_4-$ or $-\text{O}(\text{CH}_2)_2\text{O}-$.

24. A compound according to claim 17, in which Ar is a group of formula II in which Y is carbon, R^8 is $-\text{NHR}^{13}$ where R^{13} is hydrogen, $\text{C}_1\text{-C}_{10}\text{-alkyl}$, $\text{C}_1\text{-C}_{10}\text{-alkyl}$ interrupted by 1 to 3 hetero atoms, $-\text{COR}^{14}$ where R^{14} is hydrogen, $\text{C}_1\text{-C}_{10}\text{-alkyl}$ or $\text{C}_1\text{-C}_{10}\text{-alkyl}$ interrupted by 1 to 3 hetero atoms, or R^{13} is $-\text{C}(=\text{NH})\text{R}^{17}$, $-\text{SOR}^{17}$ or $-\text{SO}_2\text{R}^{17}$ where R^{17} is $\text{C}_1\text{-C}_{10}\text{-alkyl}$ or $\text{C}_1\text{-C}_{10}\text{-alkyl}$ interrupted by 1 to 3 hetero atoms, R^9 is hydrogen, R^{10} is $-\text{OR}^{18}$ where R^{18} is hydrogen, $\text{C}_1\text{-C}_4\text{-alkyl}$ or $\text{C}_1\text{-C}_4\text{-alkoxy-C}_1\text{-C}_4\text{-alkyl}$, p and q are each 1 and r is zero.

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25. A compound according to claim 24, in which Ar is a group of formula XV



XV

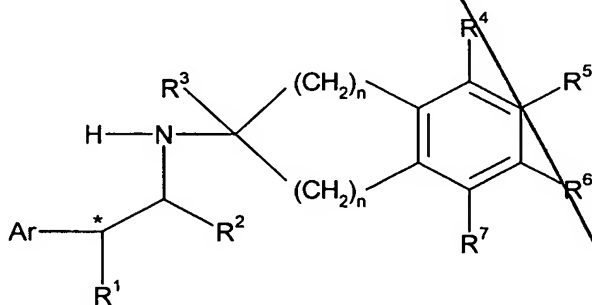
where R¹³ is as defined in claim 24, R¹ is hydroxy, R² and R³ are hydrogen, R⁴ and R⁷ are identical and are each hydrogen, C₁-C₄-alkyl or C₁-C₄-alkoxy, and either R⁵ and R⁶ are identical and are each hydrogen, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-C₁-C₄-alkyl, or R⁵ and R⁶ together denote -(CH₂)₄- or -O(CH₂)₂O-.

26. A compound according to claim 17, in which R₄, R₅, R₆ and R₇ are each hydrogen or are such that the benzene ring to which they are attached is symmetrically substituted.

27. A compound according to claim 17, in which Ar is a group of formula III, IV, V, XII or XV, R¹ is hydroxy, R² and R³ are hydrogen, R⁴ and R⁷ are identical and are each hydrogen, C₁-C₄-alkyl or C₁-C₄-alkoxy, and either R⁵ and R⁶ are identical and are each hydrogen, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-C₁-C₄-alkyl, or R⁵ and R⁶ together denote -(CH₂)₄- or -O(CH₂)₂O-, in free or salt or solvate form.

28. A compound according to claim 27, in which the carbon atom in formula I marked with an asterisk * has the R configuration.

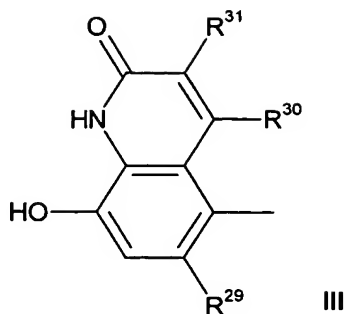
29. A compound of formula



in free or salt or solvate form,

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a¹

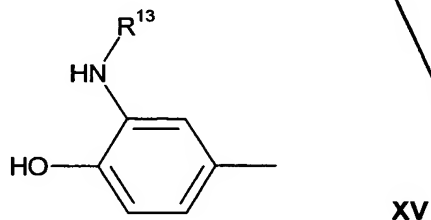
(A) wherein Ar is a group of formula



in which R²⁹, R³⁰ and R³¹ are each H, R¹ is OH, R² and R³ are each H and

- (i) n is 1, and R⁴ and R⁷ are each CH₃O- and R⁵ and R⁶ are each H; or
- (ii) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ are each CH₃CH₂-; or
- (iii) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ are each CH₃-; or
- (iv) n is 1, and R⁴ and R⁷ are each CH₃CH₂- and R⁵ and R⁶ are each H; or
- (v) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ together denote -(CH₂)₄-; or
- (vi) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ together denote -O(CH₂)₂O-; or
- (vii) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ are each CH₃(CH₂)₃-; or
- (viii) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ are each CH₃(CH₂)₂-; or
- (ix) n is 2, R⁴, R⁵, R⁶ and R⁷ are each H; or
- (x) n is 1, and R⁴ and R⁷ are each H and R⁵ and R⁶ are each CH₃OCH₂-; or

(B) wherein Ar is a group of formula



in which R¹³ is H, R¹ is OH, R² and R³ are each H, R⁴ and R⁷ are each H and R⁵ and R⁶ are each H and n is 1; or

(C) which is a compound selected from 8-hydroxy-5-[1-hydroxy-2-(indan-2-ylamino)-ethyl]-1H-quinolin-2-one, 5-[2-(5,6-dimethoxy-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-1H-quinolin-2-one, 5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-3-methyl-1H-quinolin-2-one, 5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-methoxymethoxy-6-methyl-1H-quinolin-2-one, 5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-6-methyl-1H-quinolin-2-one, 8-hydroxy-5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-3,4-dihydro-1H-quinolin-2-one, N-

B^3
cont

[illegible]

{2-hydroxy-5-[(R)-1-hydroxy-2-(2,5,6-trimethyl-indan-2-ylamino)-ethyl]-phenyl}-formamide, 5-[(R)-2-(5,6-diethyl-2-methyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-1H-quinolin-2-one, (S)-5-[2-(4,7-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-1H-quinolin-2-one hydrochloride, 5-[(R)-1-hydroxy-2-(6,7,8,9-tetrahydro-5H-benzocyclohepten-7-ylamino)-ethyl]-8-hydroxy-1H-quinolin-2-one hydrochloride, (R)-5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-1H-quinolin-2-one maleate, (R)-5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-1H-quinolin-2-one hydrochloride, N-{5-[(R)-2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-2-hydroxy-phenyl}-formamide, 4-[(R)-2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-2-dimethylamino-phenol hydrochloride, 4-[(R)-2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-2-methylamino-phenol hydrochloride, N-{5-[2-(5,6-diethyl-indan-2-ylamino)-1-hydroxy-ethyl]-2-hydroxy-phenyl}-methanesulfonamide hydrochloride), (R)-8-hydroxy-5-[(S)-1-hydroxy-2-(4,5,6,7-tetramethyl-indan-2-ylamino)-ethyl]-1H-quinolin-2-one, 8-hydroxy-5-[(R)-1-hydroxy-2-(2-methyl-indan-2-ylamino)-ethyl]-1H-quinolin-2-one, 5-[2-(5,6-diethyl-indan-2-ylamino)-ethyl]-8-hydroxy-1H-quinolin-2-one, 8-hydroxy-5-[(R)-1-hydroxy-2-(2-methyl-2,3,5,6,7,8-hexahydro-1H-cyclopenta[b]naphthalen-2-ylamino)-ethyl]-1H-quinolin-2-one, 5-[(S)-2-(2,3,5,6,7,8-hexahydro-1H-cyclopenta[b]naphthalen-2-ylamino)-1-hydroxy-ethyl]-8-hydroxy-1H-quinolin-2-one, N-{2-hydroxy-5-[(R)-1-hydroxy-2-(2-methyl-indan-2-ylamino)-ethyl]-phenyl}-methanesulfonamide), ethanesulfonic acid {2-hydroxy-5-[(R)-1-hydroxy-2-(2-methyl-indan-2-ylamino)-ethyl]-phenyl}-amide, propane-1-sulfonic acid {2-hydroxy-5-[(R)-1-hydroxy-2-(2-methyl-indan-2-ylamino)-ethyl]-phenyl}-amide, N-{5-[2-(2-ethyl-indan-2-ylamino)-1-hydroxy-ethyl]-2-hydroxy-phenyl}-methanesulfonamide, or N-{2-hydroxy-5-[(R)-1-hydroxy-2-(2,5,6-trimethyl-indan-2-ylamino)-ethyl]-phenyl}-methanesulfonamide.

30. A compound according to claim 17 in combination with a steroid, a dopamine receptor agonist or an anticholinergic or antimuscarinic agent.
31. A pharmaceutical composition comprising a compound according to claim 17, together with a pharmaceutically acceptable carrier.
32. A pharmaceutical composition comprising a compound according to claim 28, together with a pharmaceutically acceptable carrier.
33. A method for the treatment of a condition which is prevented or alleviated by activation of the β_2 -adrenoreceptor which comprises administering to a subject in need thereof an effective amount of a compound according to claim 17.
34. A method for the treatment of an obstructive or inflammatory airways disease which comprises administering to a subject in need thereof an effective amount of a compound according to claim 17.

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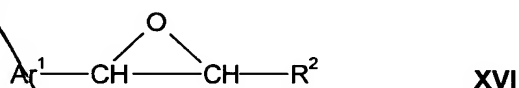
35. A method for the treatment of obstructive or inflammatory airways disease which comprises administering to a subject in need thereof an effective amount of a compound according to claim 29.

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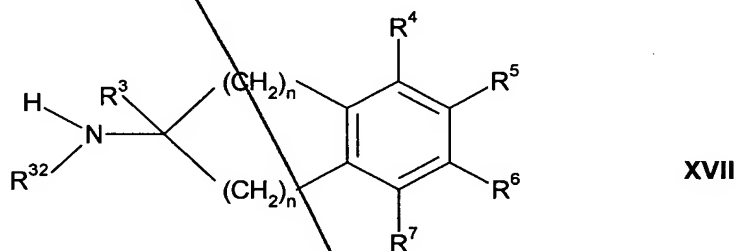
36. A process for the preparation of a compound of formula I in free or salt or solvate form comprising:

(a) for the preparation of a compound where R¹ is hydroxy, either

(i) reacting a compound of formula

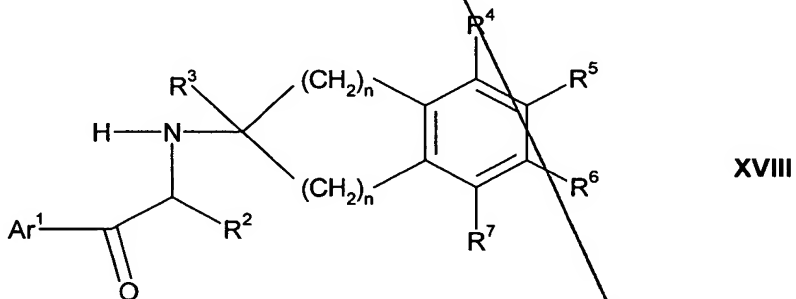


with a compound of formula



where Ar¹ is Ar as defined in claim 17 or a protected form thereof, R², R³, R⁴, R⁵, R⁶, R⁷ and n are as defined in claim 17 and R³² is hydrogen or an amine-protective group, or

(ii) reducing a compound of formula



where Ar¹ is Ar as defined in claim 17 or a protected form thereof, R², R³, R⁴, R⁵, R⁶, R⁷ are as defined in claim 17, to convert the indicated keto group into -CH(OH)-; or

(b) for the preparation of a compound where R¹ is hydrogen, reducing a corresponding compound of formula I where R¹ is hydroxy; or

(c) for the preparation of a compound of formula I where R¹ is alkoxy, either (i) O-alkylating a corresponding compound of formula I where R¹ is hydroxy or (ii) reacting a corresponding

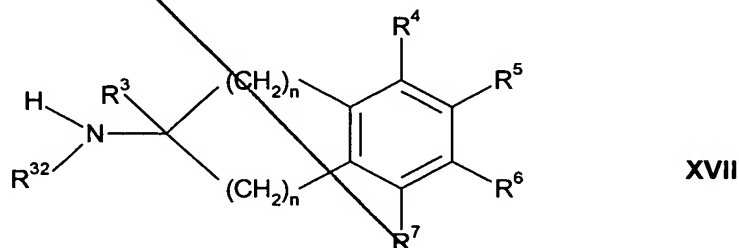
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a¹
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compound having a leaving moiety instead of R¹ with an alcohol of formula R¹H where R¹ is alkoxy;

and, optionally, converting a resultant compound of formula I in protected form into a corresponding compound in unprotected form;

and recovering the resultant compound of formula I in free or salt or solvate form.

37. A compound of formula XVII



where R³, R⁴, R⁵, R⁶, R⁷ and n are as defined in claim 17, where R⁴, R⁵, R⁶ and R⁷ are such that the benzene ring to which they are attached is symmetrically substituted, and R³² is hydrogen or an amine-protective group, with the exception of compounds where R⁴, R⁵, R⁶, R⁷ and R³² are each hydrogen, where R⁴ and R⁷ are methyl and methoxy when R⁵, R⁶ and R³² are each hydrogen, and where R⁴, R⁷ and R³² are hydrogen when R⁵ and R⁶ are each hydroxy, fluorine or chlorine. --